

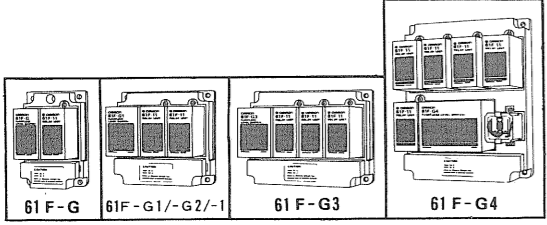
形61F

フロートなしスイッチ

ベースタイプ

取扱説明書

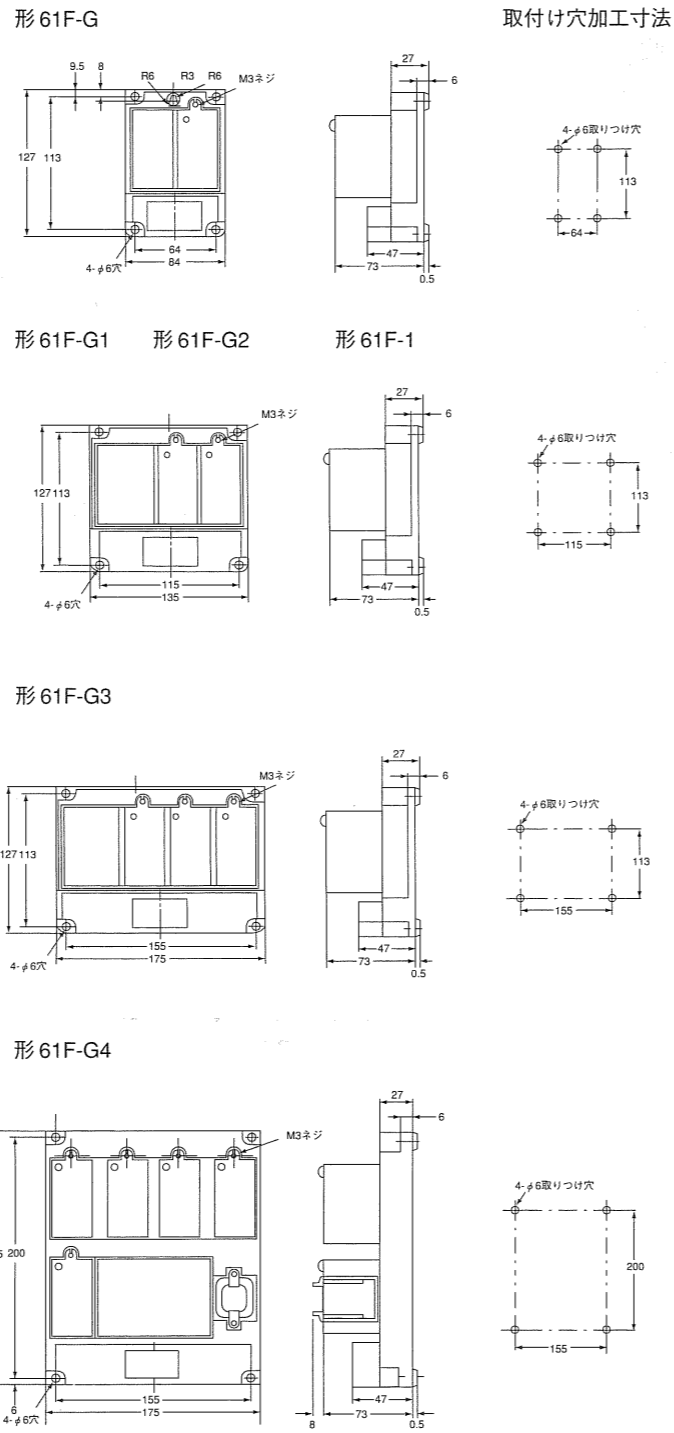
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この製品を安全に正しく使用していただくために、お使いになる前にこの取扱説明書をお読みになり、十分にご理解してください。
お読みになったあとは、いつも手元においてご使用ください。



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2406546-9C

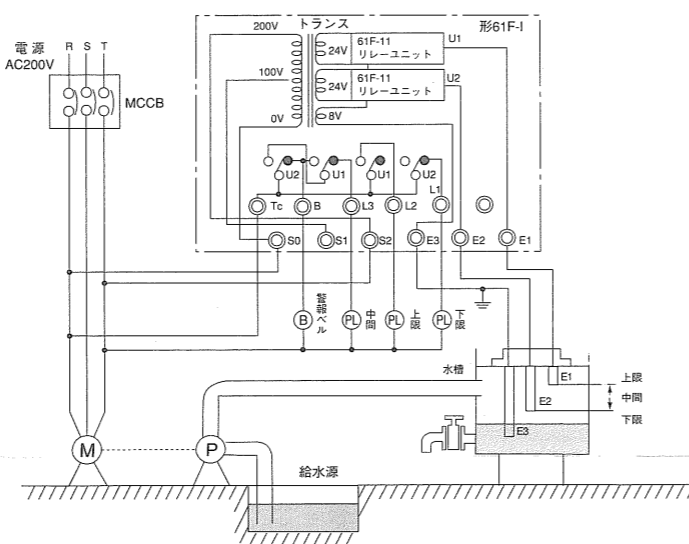
■外形寸法



取付け穴加工寸法

■外部接続例

■形61F-I フロートなしスイッチ総合接続図 (電源AC200Vの場合)

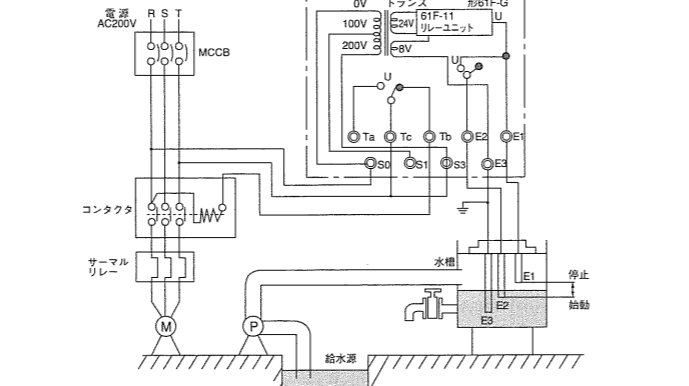


- 電源電圧が100VのときはSo-S1端子に配線して下さい。200VのときはS2-S3端子です。
- E5端子は必ず接地して下さい。

【動作確認】

- ①水槽内の液がE1(短)より増えると上限ランプがつき、液面表示ベルがなります。
- ②水槽内の液がE1(短)とE2(中)の間では中間ランプがつきます。
- ③水槽内の液がE2(中)より減ると下限ランプがつき、液面表示ベルがなります。
- ④ただし液の種類と電圧の変化で、電極の先端に液面が達しても動作する高さには多少の相違があります。

■形61F-G フロートなしスイッチ総合接続図 (電源AC200Vで給水の場合)

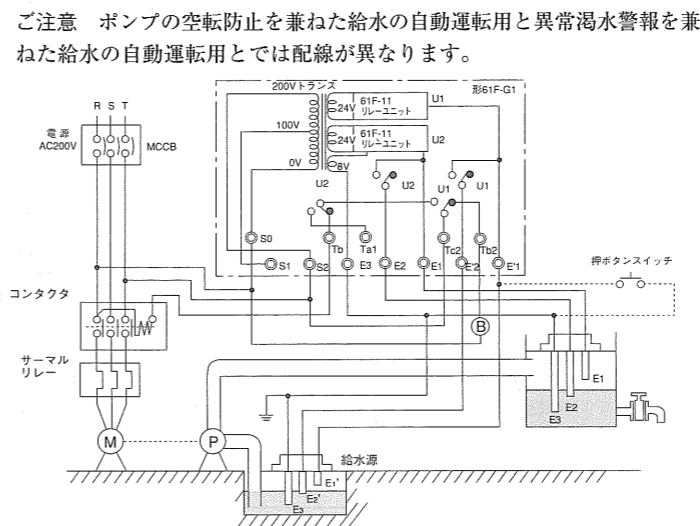


- 排水用に使用されるときはTb端子配線をTa端子につなぎかえて下さい。
- 電源電圧が100VのときはSo-S1端子に配線して下さい。200VのときはS2-S3端子です。
- E5端子は必ず接地して下さい。

【動作確認】

- 給水するとき
水面がE1電極に達するとポンプは止まり、E2電極以下になると始動します。
- 排水するとき
水面がE1電極に達するとポンプは止まり、E2電極以下になると始動します。

■形61F-G1 フロートなしスイッチ総合接続図 (ポンプの空転防止を兼ねた給水の自動運転用 (電源AC200Vの場合))

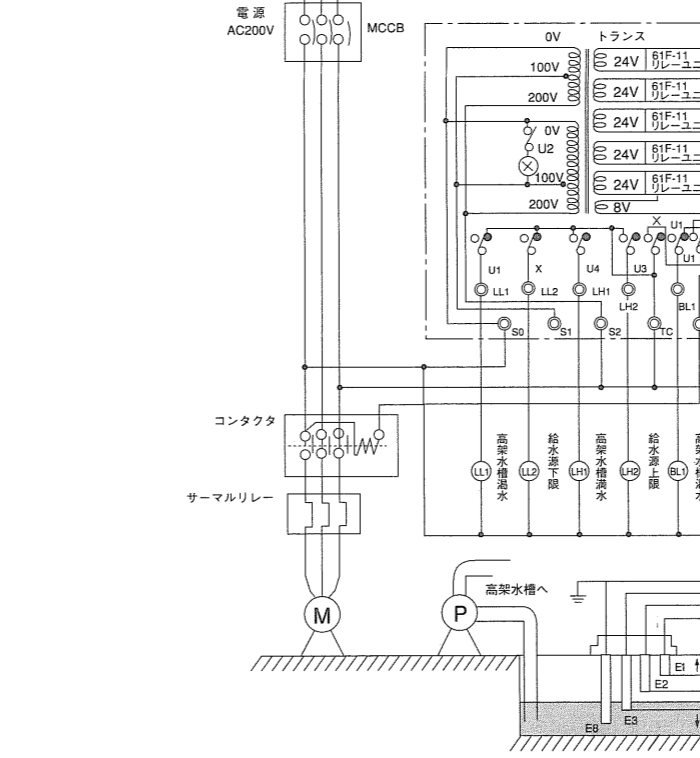
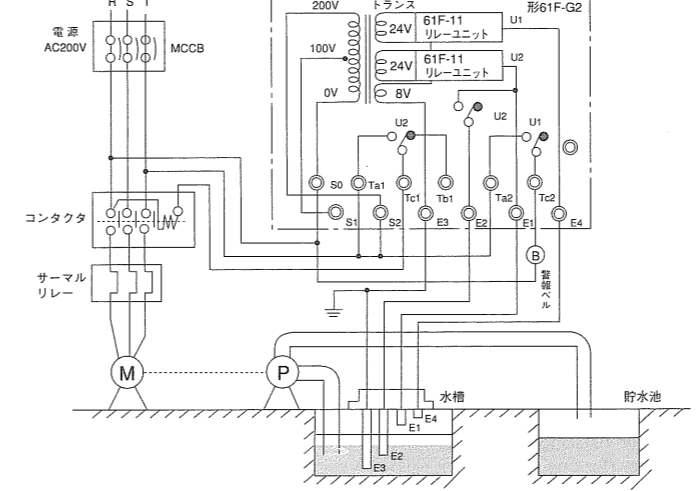


- 電源電圧が100VのときはSo-S1端子に配線して下さい。200VのときはS2-S3端子です。
- E5端子は必ず接地して下さい。

【動作確認】

- ①空転防止の場合・水槽の液がE1(短)まで増えると、ポンプのモータが止まり、E2(中)より減るとモータが回ります。
- ②空転防止の場合・給水源の液がE1(中)以下に満水したとき、自動的にポンプのモータが止まり、警報ベルがなります。
- ③異常増水警報の場合・ポンプが運転中、何らかの事故で液面が水槽のE1(長)以下になると、自動的にポンプのモータが止まり、警報ベルがなります。
- ④液面制御の範囲は水槽内のE1(短)とE2(中)の先端間の距離です。したがって電極棒の長さを変えたりと範囲を自由に調節できます。
- ⑤ただし、液の種類と電圧の変化で、電極の先端に液面が達しても、動作する高さには多少の相違があります。
- ⑥破線のようにE1'とE2'間に押ボタンスイッチ(a接点)を入れてください。始動のとき、および停電復旧時、給水源の水面がE1'に達していない場合は押ボタンスイッチを押して瞬間短絡させ(U1動作"ON")、ポンプを始動させます。通常運転時に低水位警報がでてポンプが停止した場合は(U1動作"OFF")(水位がE1'に達していない)、押ボタンスイッチは押さないでください。

■形61F-G2 フロートなしスイッチ総合接続図 (異常増水警報を兼ねた排水の自動運転用 (電源電圧 200Vの場合))



■保守・点検



■ご使用に際してのお願い

- 次に示すような条件や環境で使用する場合は、定格、機能に対して余裕を持った使い方やフェールセーフなどの安全対策へのご配慮をいたたくとも、当社営業担当者までご相談くださるようお願いいたします。
1. 取扱説明書に記載のない条件や環境での使用
 2. 原子力制御・鉄道・航空・車両・燃焼装置・医療機器・娯楽機械・安全機器などへの使用
 3. 人命や財産に大きな影響が予測され、特に安全性が要求される用途への使用

安全上のご注意

●警告表示の意味

警告 誤った取り扱いをすると、死亡または重傷を負う可能性が想定される場合を示します。

●警告表示

警告

端子には触らないでください。

感電の恐れがあります。

電源を入れた状態で分解したり、内部に触ったりしないでください。感電の恐れがあります。

お願い

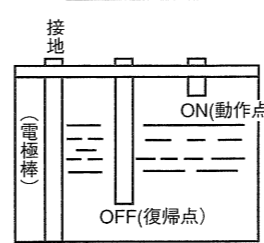
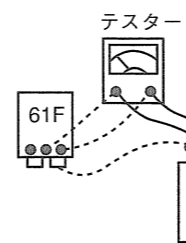
爆発性、可燃性の粉塵、可燃性のガス、引火性の蒸気、腐食性のガス、過度の粉塵、塩水の飛沫及び、水滴にさらさない状態で使用して下さい。

正しい使い方

- 用途、使用電源をご確認下さい。AC200VとAC100Vとでは、接続端子が異なります。なお、電源電圧がAC200V、AC100V以外の場合には、本体表示に従って下さい。
- 電極回路の配線を間違えないようにして下さい。総合回路図をもう一度たしかめて下さい。
- 接地端子は、確実に接地して下さい。
- 電極と電極とが液中で接触する時は、別売品のセパレータを使って防いで下さい。
- 電極と電極の接続部は、雨水などがたまる恐れのないところにして下さい。
- 電極棒のナットは、十分締め付けて下さい。
- 電極に浮遊物がかからないようにして下さい。
- 液体の固有抵抗が高すぎ、ほとんど電気が通じない油等には使用できません。

■種類 本体/基本形

用途	基本形						
	Gタイプ	G1タイプ	G2タイプ	G3タイプ	G4タイプ	Iタイプ	
給水、排水の自動運転	(用途1) 給水の自動運転	(用途2) 異常増水警報を兼ねた給水の自動運転	異常増水警報を兼ねた給水、排水の自動運転	満水、濁水警報を兼ねた給水、排水の自動運転	給水源の水位表示、空転防止、高架水槽の水位表示、給水の自動運転	液面の表示と警報	
項目	基本形	61F-G	61F-G1	61F-G2	61F-G3	61F-G4	61F-I
シリーズ品	61F-GT	61F-G1T	61F-G2T	61F-G3T	61F-G4T	61F-IT	
	61F-GL	61F-G1L	61F-G2L	61F-G3L	61F-G4L	61F-IL	
	61F-GH	61F-G1H	61F-G2H	61F-G3H	61F-G4H	61F-IH	
	61F-GD	61F-G1D	61F-G2D	61F-G3D	61F-G4D	61F-ID	
	61F-GR	61F-G1R	61F-G2R	61F-G3R	61F-G4R		
	<ul style="list-style-type: none"> ●高温用 61F-GT 使用温度範囲 -10 ~ +70°C ●遠距離用 61F-GL 2km用, 4km用 ●高感度用 61F-GH 蒸留水など 10⁶Ω・cm以下の固有抵抗抑制 ●低感度用 61F-GD 固有抵抗が低い液体の制御 ●2線式 61F-GR 簡単な液面制御に適した2線式 						
	取付け方法	●ネジ取付け					



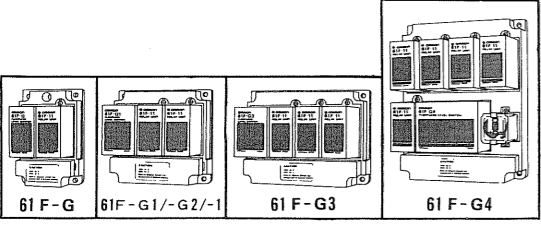
給水	給水	排水
ON	揚水停止	排水開始
OFF	揚水開始	排水停止



MODEL 61F FLOATLESS LEVEL SWITCH

INSTRUCTION MANUAL

Thank you for purchasing the Model 61F Floatless Level Switch. Before using it, thoroughly familiarize yourself with the instructions in this manual. It is recommended that you save this sheet for future reference.



OMRON Corporation

OPTION

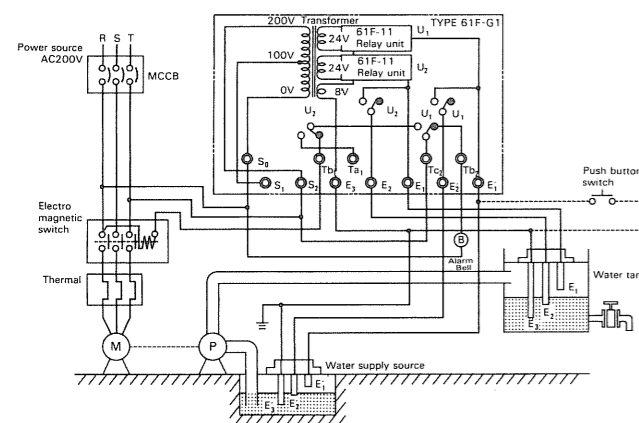
Electrode holder

Type
PS-3S
PS-4S
PS-5S
PS-3SR
PS-4SR
PS-5SR
PS-31 (SUS304 300%)
BF-1
BF-3
BF-4
BF-5
BF-3R
BF-4R
BF-5R
BS-1
BS-1X
BS-1T
PH-1 (1m vinyl code)
PH-1 (1m chloroprene cord)
PH-2 (1m vinyl cord)
PH-2 (1m hypalon cord)

NOTE: Select the lengths of the Type PH-1 and Type PH-2 cords from the following.
1m, 2m, 3m, 4m, 5m, 6m, 7m, 8m, 9m, 10m, 15m, 20m, 30m, 40m, 50m, 60m, 70m, 80m, 90m, 100m.

G1 type (200, 220, or 240VAC) Automatic Water Supply Control with Prevention of Pump Idling.

Warning: Note the difference in the wiring between the automatic water supply control with prevention of pump idling and that with issuance of alarm for abnormal water shortage.



- With the power supply voltage 100V (110, 120V), the wiring is made between S_0-S_1 and with 200V (220, 240V) S_0-S_2 .
- Be sure to ground terminal E3.

OPERATION

- For Prevention of Pump Idling: When the liquid level in the water tank reaches E_1 (high) the motor is turned off, and when the level drops below E_2 (medium) it is turned on.
- For Prevention of Pump Idling: The motor is automatically turned off, when the liquid at the water supply source is in shortage and drops below the level of E_2 (medium). An alarm is then sounded.
- Issuance of Alarm for Abnormal Water Shortage: The motor is automatically turned off when for any reason the liquid level in the water tank drops below E_2 (low). An alarm is then sounded.
- Liquid level control is conducted within the range between the tips of E_1 (high) and E_2 (medium) in the water tank. Therefore, by changing the length of electrodes the range of control can be freely adjusted.
- However, depending on the type of liquid and voltage variation, a slight difference is noted of the level where the pump resumes operation after the liquid level has reached the tip of the electrode.
- Insert a pushbutton switch (NO contact) between $E1'$ and $E3$ as shown by the dotted line on the light. In starting pump or after recovery from power failure, if water supply source level has not yet reached $E1'$, depress the pushbutton switch to start the pump by momentarily short-circuiting $E1'$ and $E3$. When the pump stops during normal operation subsequent to an alarm issued for low water level (water level does not reach $E2'$), do not depress the pushbutton switch.

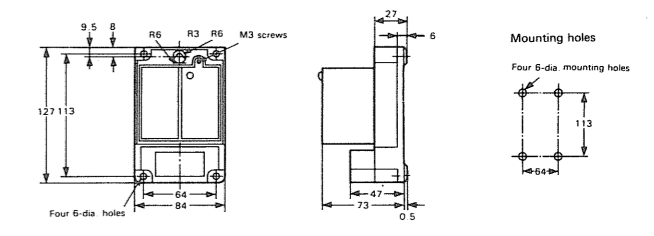
AVAILABLE TYPES

	Model G	Model G1	Model G2	Model G3	Model G4	Model I
Classification by application	Automatic Water Supply and Drainage Control	Application 1 Automatic Water Supply Control with Prevention of Pump Idling	Application 2 Automatic Water Supply Control with Alarm for Abnormally Low Level	Automatic Water Supply and Drainage Control with Alarm for Abnormally High and Low Levels	Automatic Water Supply Control with Level Display of Water Source and Tank	Level Indication with Alarm
General purpose type	61F-G	61F-G1	61F-G2	61F-G3	61F-G4	61F-1
Classification by control purpose	61F-GT 61F-GL 61F-GH 61F-GD 61F-GR	61F-G1T 61F-G1L 61F-G1H 61F-G1D 61F-G1R	61F-G2T 61F-G2L 61F-G2H 61F-G2D 61F-G2R	61F-G3T 61F-G3L 61F-G3H 61F-G3D 61F-G3R	61F-G4T 61F-G4L 61F-G4H 61F-G4D 61F-G4R	61F-IT 61F-IL 61F-IH 61F-IH 61F-ID
Mounting	Screw fastening					

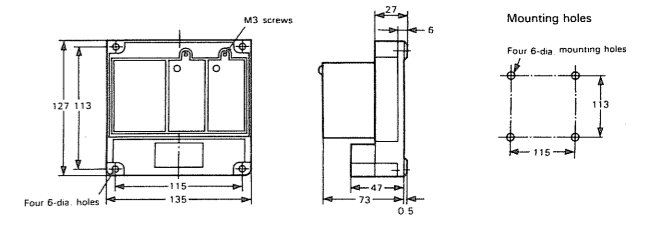
- High temperature 61F-GT -10°C to +70°C Type
- Long distance 61F-GL 2km or 4km Type
- High sensitivity 61F-GH Control of liquids, such as distilled water, that as low a specific resistance as $10^9 \Omega \cdot \text{cm}$
- Low sensitivity 61F-GD For low specific resistance liquids
- Two-wire 61F-GR Suitable for simple liquid level control

DIMENSIONS

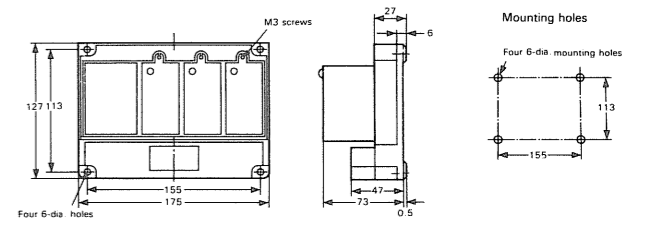
61F-G



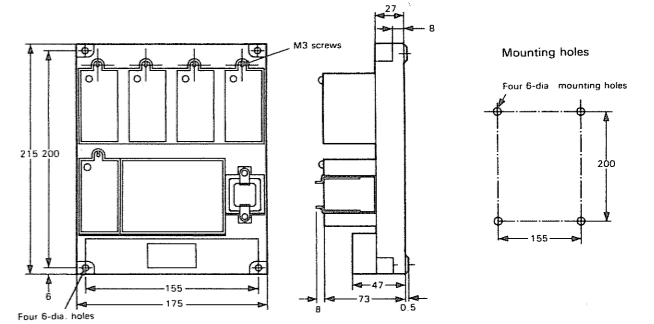
61F-G1 61F-G2 61F-1



61F-G3

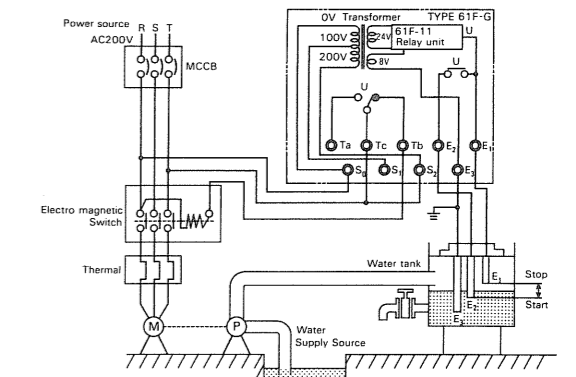


61-G4



EXTERNAL CONNECTION EXAMPLE

G type (200, 220, or 240VAC)
Automatic Water Supply and Drainage Control



- With the power supply voltage 100V, (110, 120V) the wiring is made between S_0-S_1 and with 200V (220, 240) S_0-S_2 .
- Be sure to ground terminal E3.

OPERATION

- Water supply**
Connect electromagnetic switch coil terminal A to T_b . The pump stops (U operates) when water level reaches E_1 and starts (U stops the operation) when water level drops below E_2 .
- Drainage**
Connect the electromagnetic switch coil terminal A to T_a . Pump starts (U operates) when water level reaches E_1 and stops (U stops the operation) when water level drops below E_2 .

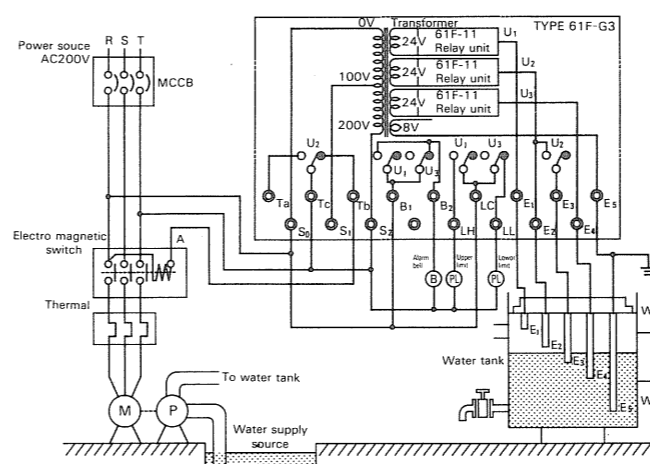
G4 type (200, 220, or 240 VAC): Water Supply Water Source Level Indication, Prevention of Pump Idling Due to Water Shortage, Automatic Water Supply Control and Indication of Water Level in Tank.

- With the power supply voltage 100V, the wiring is made between S_0-S_1 and with 200V S_0-S_2 .
- Be sure to ground terminal E8.

HINTS ON CORRECT USE

- Prior to power application, check the following.
- Be sure to use the floatless level switch for the correct applications at the correct supply voltage. The terminal connection of the switch at 100 VAC is different from that at 200 VAC. When using supply voltage other than 100 or 200 VAC, refer to the indication on the switch.
- Check the wiring of the power circuit. Check the wiring against the circuit diagram provided in this instruction manual.
- Be sure to ground the ground terminal.
- Check whether the electrodes contact each other in the liquid. If they do, separate them using a separator optionally available.
- Avoid placing the connection of the electrodes where liquids other than that to be sensed, such as rainwater, exist.
- Adequately tighten the nuts of the electrodes.
- Prevent any foreign objects from collecting on the electrodes.
- The level switch cannot be used to sense substances with high specific resistance such as oil.

G3 type (200, 220, or 240VAC)
Automatic Water Supply and Drainage Control with Issuance of Alarm for Abnormal Water Shortage and Repletion in Tank.

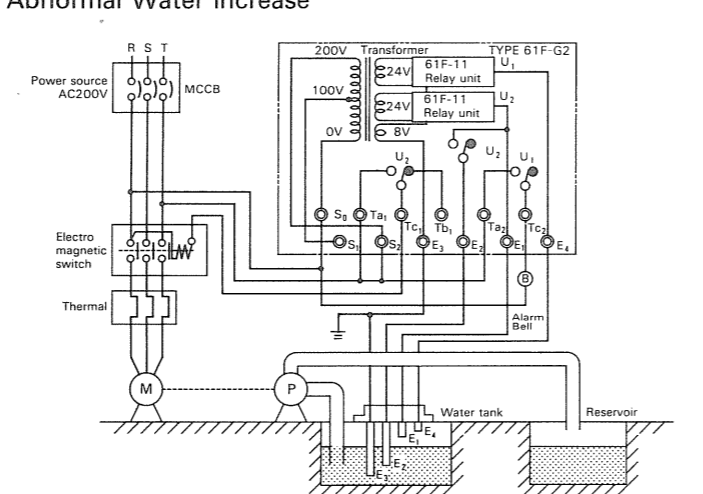


- With the power supply voltage 100V, the wiring is made between S_0-S_1 and with 200V S_0-S_2 .
- Water supply - Connect electromagnetic switch coil terminal A with T_b .
- Drainage - Connect electromagnetic switch coil terminal A with T_a .
- Be sure to ground terminal E5.

OPERATIONS

- Water Supply: The pump stops when the liquid level in the water tank reaches E_2 (high) and resumes operation when the level drops below E_1 (medium).
- Drainage: The pump starts operating when the liquid level within the water tank reaches E_2 (high) and stops when the level drops below E_1 (medium).
- Issuance of Alarm for Abnormally High Level: When the liquid level within the water tank reaches E_1 (high), the upper limit indicator lamp lights and an alarm is sounded indicating an abnormally high level of liquid.
- Issuance of Alarm for Abnormal Water Shortage: When the liquid level within the water tank drops below E_2 (low), the lower limit indicator lamp lights, and an alarm is sounded indicating an abnormal water shortage.

G2 (200, 220, or 240 VAC) Automatic Drainage Control with Issuance of Alarm for Abnormal Water increase

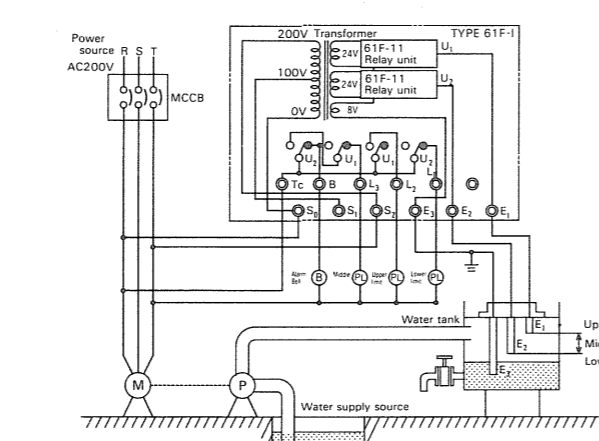


- With the power supply voltage 100V, the wiring is made between S_0-S_1 and with 200V S_0-S_2 .
- Be sure to ground E3.

OPERATION

- When the liquid level in the drainage tank exceeds E_1 (high), the motor is turned on and when the level drops to E_2 (medium) it is turned off. When the liquid surface rises to E_1 (highest), an alarm is sounded warning the abnormally high level of water.
- Thus, the liquid level control is conducted within the range between the tips of E_1 (high) and E_2 (medium) in the water tank. Therefore, the range of control can be freely adjusted by changing the length of.
- However, depending on the type of liquid and voltage variation, a slight difference is noted of the level where the pump resumes operation after the liquid level has reached the tip of the electrode.

I type (200, 220, or 240VAC)
Liquid Level Indication and Alarm.



- With the power supply voltage 100V, the wiring is made between S_0-S_1 and with 200V S_0-S_2 .
- Be sure to ground terminal E_3 .

OPERATION

- When liquid within the water tank exceeds the level of E_1 (high), the upper limit indicator lamp lights and the alarm bell is sounded.
- When liquid within the water tank remains at a level between E_1 (high) and E_2 (medium), the medium level indicator lamp lights.
- When liquid within the water tank is reduced to the level below E_2 (medium), the lower limit indicator lamp lights and the alarm bell is sounded.
- However, depending on the type of liquid and voltage variation, a slight difference is noted of the level where the pump resumes operation after the liquid level has reached the tip of the electrode.

MAINTENANCE AND INSPECTION

